



# The Sacred Source

## A Portrait of the Ganges 2007



**Monday,  
May 14th, 2007  
Cleveland, Ohio USA  
Preparations**

My first trip up into the Garhwal Himalayas of North India, what I now refer to as the Ganges Himalayas, was back in the Winter of 1970. Coming full circle nearly 4 decades later I am filled with both excitement and more than a bit of sober trepidation regarding what we will see & experience.

This relatively tiny region of the Himalayas has continued to hold great artistic & spiritual fascination for me over these many years as I have explored a great deal of the Himalayas and the rest of India. But now my artistic vision has come into focus on this amazing region of the Himalayas... the single most sacred range of mountains on earth!

And although my main effort is to create a vast body of artwork that presents the extraordinary artistic beauty of the region, my research over these past several years of preparation points to several troubling facts about the region which we will now examine and include in my artistic study. Since I am both a landscape painter & wildlife artist, these of course will be a major focus. And in this regard, over these next several years I will focus a wide and penetrating artistic vision on the whole issue of Asian Elephant Conservation from Rajaji & Corbett National Parks eastward through Nepal and on into East India.

But since my major emphasis is upon the Ganges herself, I am wanting to paint an accurate portrait of her physical condition today at the very beginnings of this 21st century. And this has led me to delve into the ecology of this entire region. And this in turn has brought a number of India's most erudite experts in these matters to my attention. Therefore, wherever possible I will create & post these in-depth illustrated articles about the diverse efforts underway throughout the Ganges Himalayas to deal with essentially two major occurrences that the world needs to see. The first is the extraordinary physical and cultural impact of greatly increased tourism up into the region by tens of thousands



of religious pilgrims, now coupled with trekkers, river rafters, and mountain climbers.

And since my expertise in these matters, as it applies to the region, are very limited, wherever possible I will rely upon the true expertise of those Indian scientists and experts who do have an in-depth knowledge and vision for the future. And this is a very important point from my own personal point of view. For it is very easy for the "Average Intelligent", to merely gripe about conditions. It takes little effort to wring ones hands and lament the fates. But it takes true genius to see the real issues, no matter how bad they are, and also see a vision forward with viable and practical solutions to seemingly insoluble problems.

And one such person that I have discovered of late is a woman named Dr. Harshvanti Bhisht, who in fact not only sees the negative impact that uncontrolled, undisciplined tourism in recent years has had upon the region, but who is also trying to valiantly do something tangible to stem the tide of destruction and thoughtless abuse of the region. And here's her initial story. We will be doing more precise follow up with her as we proceed. And you can then follow up directly with her if you'd care to lend some support to her efforts to save the Gangotri Region's natural beauty.

### **Bhojpatra (Birch) Plantation & EcoAwareness Campaign in the Gangotri/Gaumukh Region of the Ganges Himalayas in the state of Uttarakhand, India 2007**



Dr. Harshvanti Bhisht  
[gangotri.prayaga.org](http://gangotri.prayaga.org)

#### **The Region**

The Gangotri-Gaumukh region lies between 78°55'E & 79°10'E and 30°51'N & 31°1'N in Uttarkashi district of Uttarakhand state in India. Towards the north of Gangotri-Gaumukh, lie the villages of Nelong and Jadung in the Jadh watershed, as well as the Tibet border. On the east can be found the holy sites of Kedarnath and Badrinath, on the south is Tehri district, and the



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western boundary comprises the Yamuna valley where Yamunotri can be found. The four together comprise the famous "Char Dham" of Uttarakhand, one of the holiest of Hindu pilgrimage circuits.

Gangotri Township is situated on the banks of river Bhagirathi and the confluence of river Bhagirathi and Kedar Ganga. As a small seasonal township, Gangotri is located 525km from India's capital Delhi by road. Gangotri was declared a revenue village in 1960 by the Uttar Pradesh government. Construction of a giant iron bridge over the Jadh River at Bhaironghati in 1985 resulted in a large influx of pilgrims and tourists to Gangotri. Shortly after, a "Special Area Development Plan" was formed by the state government for the "balanced development" of Gangotri. Despite initial steps to establish the Gangotri National Park coming in 1989, earlier measures has accelerated illegal building construction in Gangotri.

Dharali is the last migratory village of the area 25 km before Gangotri and includes modest tourist accommodation facilities. Nine kilometers beyond Gangotri, Chirbasa (3606m) is located within a forest of Kail (blue pine) on the way to Gaumukh. At Chirbasa, there are 6-7 tea stalls catering to pilgrims and tourists. Another halting place, Bhojbasa (3792m), is named after Bhojpatra (birch) forests in the area, and located 14 km from Gangotri. It is presently to-



tally denuded of the Bhojpatra trees. Today, the dead woods of Birch remind us of the past glory of the Birch forest. Moreover, the trek is poorly maintained and difficult to walk. From here onwards one has to walk mostly over the boulders. Gradually the tree line ends and alpine flora becomes visible.

Gaumukh is located 4 km further up river from Bhojbasa. The snout of the 26 km-long Gangotri glacier, from where the main tributary (Bhagirathi) of the river Ganga, emerges, is located at an altitude of 3892m. Gaumukh itself is 18 km from Gangotri. One can walk or take a pony ride over this distance.



Gangotri Temple.

The glaciers of this area come under the Gangotri glacier system. Its ice surface occupies slightly over 200 sq. km and total volume is 20 cubic km. Locally, the glaciers are known as the bamak. The Gangotri glacier is one of the biggest glaciers in the world outside the Karakoram group. It has many tributary glaciers such as Raktavarna bamak (14km), Chaturangi bamak (14km), Kirti Bamak (5km), Meru bamak (5.5km), Swachanda bamak (5km) and Ghanohim (4km), etc. The snow-covered peaks of this area are a great attraction for mountaineers throughout the world. Prominent Among them are Shivling (6543m), Bhagirathi Group (I-6596m, II-6512m, III-6454m), Meru East (6261m), Gangotri Group (I-6672m, II-6590m, III-6577m), Bhrigupanth (6770m), Satopanth (7070m), Chaukhamba massive (7138m) and Rudugaira (5619m). The area includes some 40 6000m peaks and 2 peaks above 7000m.

### Pilgrimage & Adventure Tourism

Pilgrimage to Gangotri is an age-old tradition, but tourism as a modern phenomenon was introduced in the seventh decade of the last century. Holy Scriptures says that Raja Bhagirath underwent strict penance to save the souls of his ancestors from the curse of Kapil Maharaj. Where after the Ganga descended to appear here. Ganga says to Raja Bhagirath, "I emerge from the Himalaya in ten forms, of which the eldest and among the most superior streams will follow you, while the rest will flow with me. O King, they will be known by many names on the earth, their very sight and touch will provide blessing for they are born of me. Bhagirath, this is the pilgrim centre called Gangotri." (Skand Puraan Kedarkhand, Chapter 39-Sholak 40, 41). Since then Hindus come for the pilgrimage to Gangotri. In ear-



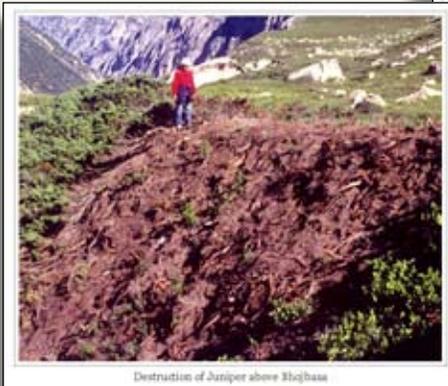
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lier times the Europeans came to the sources of river Ganga and Yamuna, but then their journeys were purely scientific and exploratory not as leisure, religious or adventure trips. But the last three decades of twentieth century changed the whole scenario of pilgrimage and tourism in this area. Gradually adventure tourism leaped to the Himalayan heights.

### Impact of Pilgrimage & Tourism

Unfortunately, tourism has developed in an unplanned manner, resulting in haphazard building construction, drainage systems, and garbage heaps in Gangotri region. There is no



Destruction of Juniper above Bhojbasu

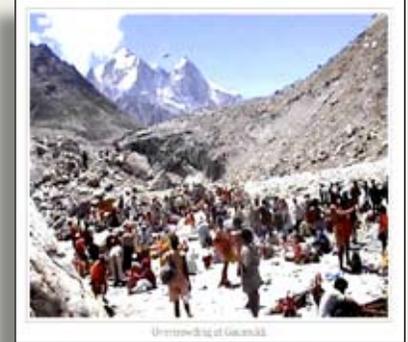


Destruction of Fuel



Clothes Discarded by Pilgrims

Bhojpatra have been and continue to be cut for fuel and energy and garbage litters the path all the way to Gaumukh. Even the areas around the tea stalls are surrounded by rubbish heaps which create a distraction for the eye and soul. However



Overcrowding at Gaumukh

most importantly, the destruction of the slow growing high altitude Birch forest and Juniper bushes in the Bhojbasu area is inflicting long term ecological damage to the otherwise arid heights.

Moreover, the number of pilgrims and tourists to Gaumukh is increasing every year yet guest facilities remain slim. This is creating chaos during the tourist / pilgrimage season. The emerging middle class trend to avail summer

infrastructure in place except for a single tourist bungalow situated at Bhojbasu. The unavailability of any alternative fuel source has



Gangotri & Raktvarna glaciers

resulted in the destruction of Birch forests and Juniper bushes. In fact, this beautiful Himalayan region has been ruined in the name of tourism and pilgrimage with more than a hundred thousand

individuals visiting Gaumukh annually. In only a few short years of unplanned development, Gangotri itself has become yet another congested Himalayan town and Bhojbasu and Gaumukh into a cold desert.

Thus in reality, this area which was described as one of the best high altitude tourism destinations for tourists and pilgrims has now become one of the most exploited by senseless mass tourism. Indeed, modern day consumerism is devouring the ecology of the region and ravaging the landscape. Juniper and

holidays and go to the Himalayas en masse is emerging as another new threat. This is forcing huge crowds to the Himalayan heights in general and Gaumukh in particular. These huge crowds and their use-and-abuse mentality are killing the very essence of ancient Hindu pilgrimage.



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### Global Warming & Climate Change

Global warming has a direct affect on the glaciers, and thereby the water resources. Fresh water is finite and vulnerable resource, essential for sustainable development. There are approximately 70 large glaciers in the Himalaya covering about 166.120 sq. km or 17 percent of the mountain area (Hoelze & Haeberli 1999).



This is the largest body of ice outside the Polar ice caps, and forms a unique reservoir which supports great perennial rivers such as the Sindhu, Ganga and Brahmaputra etc. Communities located in the glaciated areas and the plains are dependent on the melt water for the lively hood, prosperity and life. Glaciers in the central Himalaya have been retreating since expansion during the Little Ice Age. The International Commission for Snow and Ice (ICSI) claims that glaciers in the Himalaya are receding faster than in any other part of the world.

According to the second global assessment by the UN's Intergovernmental Panel on Climate Change (IPCC), "human caused global warming will produce droughts and floods across the world. Ice sheets and glaciers would melt, resulting in floods and rising sea levels as well as extreme weather events over the next century". Director-General of UNESCO, Koichiro Matsuura says, "The international community now widely agrees that climate change will constitute one of the major challenges of the 21st century". IPCC reported that it is now feared that the Himalayan glaciers are rapidly retreating because of climate change. Since the mid-1970s, the average air temperature rose by 1 degree Centigrade in the Himalayan region, almost twice as fast as the global average warming of 0.6 degree Centigrade this trend being most pronounced at high altitude

sites. The global average temperature increase projected by the end of the century ranges from 1-4 to 5.8 degree C. The UNESCO report states that a 4 degree Centigrade increase of atmospheric temperature would eliminate nearly all the glaciers on earth.

### Gangotri glacier

It is said that 67 percent of the glaciers in the Himalayan mountain range have retreated in the past decade. The retreat for Gangotri glacier has been measured as much as 30 meters per year. The glaciers are not only retreating but the thickness of the glaciers are depleting. This can be seen from the naked eyes in the glacial zones. If these glaciers of the region are vanished by melting it will be catastrophic for the entire northern plains of India. The pictures are showing the retreat as well as depleting thickness of Gangotri glaciers

### Solutions

For this mega problem (climate change) the whole world is worried. Right from Quito protocol, Earth summit and present day deliberation of the scientific community, politicians, social activists and the communities are trying to save these glaciers and other areas from these problems. To save the planet certain global and local efforts are required without any delay.

### Suggestions for the Gangotri glacier region

- 1 Restricted entry of people to such sensitive areas is most essential.
- 2 Carrying capacity of the region has to be calculated and number of people should be accordingly managed.
- 3 Sensible behavior of the people on the higher altitudes is must. Simply writing do's and don'ts is not going to help. Strict implementation of the do's and don'ts is very essential.
- 4 Planting of trees can help in reducing Co2 and other harmful gases. Trees work as sink for all unnecessary gases and pollutants.
- 5 In the modern context this can be rightly said that it is an effort towards earning Carbon Credit.
- 6 This earned Carbon Credit can help in obtaining the financial resources for the resource crunch state of Uttarakhand.
- 7 This area should be properly guarded and controlled by the concerning department which is earning different types of fees from the tourists.



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**8** Proper facilities should be provided to the tourists so that they don't get a chance to vandalize the area.

**9** More participatory activities for eco-conservation have to be introduced for the tourists, pilgrims and the hosts. Within the definition of ecotourism the tourists want to go for more active type of eco-conservation.

**10** In Gangotri-Gaumukh area we have to plan for 'Class tourism' from the existing 'Mass tourism'.

**11** The money which is coming from the expeditions as environmental fee for the maintenance of ecology and environment of the area has to be strictly spent on the specific area and for the specific objectives. This simply should not go to the government coffers and get diluted for other things.

### Our Efforts

Contemplating the ecological disturbances of the Gangotri-Gaumukh area, I decided to undertake practical eco-conservation work. Being a mountaineer, the experience of working in higher altitudes along with my research goals sustained me in my task over the long-term. As such, my first project focused on the Gangotri-Gaumukh area, which attracts the maximum number of pilgrims, trekkers, and mountaineers (Indian and foreign) in the Indian Himalayas. After the first impact assessment of tourism and pilgrimage in Gangotri-Gaumukh area I kept on doing three more projects to reach to the success of first high altitude plantation.

### Evaluating a Growing Problem

In the year 1989, I began work on a research project entitled, "*Growth of pilgrimage and tourism in Gangotri-Gaumukh area: An impact on physical resources and economy*" which was financed by Ministry of Environment & Forests, Govt. of India.

The conclusion of the study was that there are many positive impacts of pilgrimage and tourism on the local economy of the region, i.e., an increase in income and employment. But the negative environmental impacts like deforestation, water pollution, garbage heaps, recession of the glaciers, unplanned build-



ing constructions and poor drainage system are growing very fast in the region. The threat to plant species like Birch, Salix and Juniper are very evident. As a part of the project, I organized Environment Awareness Campaigns and Garbage Collection expeditions in Gaumukh area. Plantations of Birch, Juniper and other indigenous species were strongly recommended in the report.

### Plant Nursery at Chirbasa

Subsequently, I applied for permission to raise the plant nursery of indigenous species like Birch, Salix and Poplars at Chirbasa. In 1993, permission was granted from the Divisional Forest Officer, Uttarkashi for raising the plant nursery at Chirbasa, which I had been attempting since 1989. With the help of Shri Rattan Singh Chauhan, Senior Instructor, Nehru Institute of Mountaineering (Uttarkashi), I started working on establishing the plant nursery. Very soon, we raised a young nursery of Bhojpatra (Betula utilis), Bhangil (Salix babilonica) and Pahari Pipal (Populus ciliate) at Chirbasa.



### Bhojpatra (Birch) Plantation & Eco-Conservation Work

Following this success, I was granted permission to initiate afforestation at Bhojbasa over a 12-hectare area. To save the plantation from horses and ponies, permission was also obtained for barbed wire fencing of the plantation. For the very first time, barbed wire fencing was done in 2.5 hectares of area at Bhojbasa just below the Gaumukh trek, but above the GMVN tourist bungalow. 2500 saplings of Bhojpatra, Salix and Populus were planted for the first time in Bhojbasa area in 1996. Plants were taken care of by two men for ten years. Organic manure and water was continuously given to the plants. The growth rate of the plants was on average 6-8 inches per annum with a survival rate of 60-65 percent. The terrain is cold desert and climate dry and cold due to scant rains and thus not very conducive to the



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fast growth of the plants. After, ten years the trees have reached 4-5 feet in height. This plantation and the plant nursery were financed by Uttarakhand Seva Nidhi Avam Paryavaran Shikshan Sansthan, Almora.

Later during 1997-2000, we also initiated another project entitled, "Afforestation based eco-conservation in Gangotri-Gaumukh area." In this, we barbed wired 5.5 hectares of area, which was 01 km ahead of Bhojbasu at an altitude of 3820m. We planted another 10,500 saplings of Birch and Salix. Sandy soil, scant rains, cold climate, windy atmosphere, rugged cold desert-like terrain all together made the work more difficult and the progress slow. Tapping the water for the plantation from a natural stream more than a km away was not an easy task. Here the terrain is as difficult as the cold dry alpine desert. The period conducive to the growth of the plants starts from the month of May and lasts till the end of September. Therefore, there is a very small window of opportunity for the plants to grow every year. The survival rate is 50-60 percent. This is new and difficult work which we have managed to perform.

In spite of all natural and man-made odds the work was completed very laboriously. But the most noticeable thing about this work is that it is the first successful plantation of Birch in the Indian Himalayas.

### Cultivation of Medicinal Plants

To look after the plantation, another project titled, "Conservation of Bhojpatra plantation & eco-Awareness Campaign in Gaumukh Area" was sanctioned. G.B. Pant Institute of Himalayan Environment & Dev., Kosi, Almora has financed both the above projects completed so far. Simultaneously, we also cultivated medicinal plants like Kutki (*Aconitum heterophyllum*), Atis (*Picrorhiza kurroa*), Archa (*Rheum emodi*) and Salam Panja (*Orchis habemioides*).

While doing this work both, Mr. Rattan Singh Chauhan and I were falsely implicated in a criminal case by the For-

est Department, Uttarkashi. But finally, the court quashed the case and acquitted us from all the false allegations put forth by the Forest Department. We are still fighting all odds to make this constructive environmental work a success. A small documentary on the critical condition of the Himalayan environment of Gangotri-Gaumukh has also been made.

### Acknowledgments

We are thankful to Uttarakhand Seva Nidhi, Almora for the financial assistance for the plant nursery and the first plantation and to G.B. Pant Institute of Himalayan Environment & Development, Kosi-Katarmal, Almora for the second plantation. Last but not the least we are thankful to Nehru Institute of Mountaineering, Uttarkashi, Shri Prashant Negi, GMVN, Dehradun, Shri Atool Singh Chauhan GMVM, Uttarkashi for their valuable and timely help.



Dr. Harshvanti Bisht, FRGS  
Arjuna Award 1981  
Reader Dept. Of Economics,  
Govt. P.G. College, Uttarkashi

**Note:** This effort could use your support. If you'd like to assist Dr. Bisht in some tangible way, you can contact her at the following:

Dr. Harshvanti Bisht  
**Website:** [gangotri.prayaga.org](http://gangotri.prayaga.org)  
**Email:** [harshvanti@gmail.com](mailto:harshvanti@gmail.com)